



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VIII

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DENVER, COLORADO 80202-2466

*Original letter  
mailed 11/24/97-1C*

NOV 24 1997

Ref: 8P2-W-GW

Mr. Thomas Richmond  
Administrator  
Montana Board of Oil and  
Gas Conservation  
2535 St. Johns Avenue  
Billings, Montana 59102

RE: Application for an  
Aquifer Exemption of the  
Dakota Formation within  
1/4 Mile of the JN  
Exploration Browning 11-  
17 in the Creek Butte  
Field.

Dear Mr. Richmond:

My staff has reviewed the application by JN Exploration and production for an aquifer exemption of the Dakota Formation in the vicinity of their Browning #11-17 well in the Creek Butte Field. The well is located in Section 17, of T27N, R58E. This well will be used to inject produced water from oil production from the Nisku Formation in the field into the Dakota Formation at a depth of about 5,122 to 5,370 feet. The applicant proposes to inject about 200 barrels of water per day of produced water for the purpose of disposal (for an unspecified project life) into the Dakota Formation which has a porosity of about 0.23 and a thickness of about 78 to 120 feet.

Our review indicates that the Dakota Formation in the vicinity of the the Browning #11-17 Well contains fluids with a total dissolved solids (TDS) content of about 9,000 mg/liter and could be defined as an underground source of drinking water (USDW). The estimate of TDS was not based on the results of an analysis of Dakota fluid, but was based on an analysis of log results using the Archie equation. Utilization of the Dakota Formation in the vicinity of the well as a source of drinking water would require significant treatment to reduce the TDS. A pipeline would also be required to move treated water to a public water system. The treatment plant and pipeline would require significant additional capital investment. Treatment costs to treat water with such a high TDS would be significant.

The applicant has provided information indicating that the main potential USDWs in this area are the Ft union and the Fox Hills formations. The Fox Hills is at a depth of about 1,500



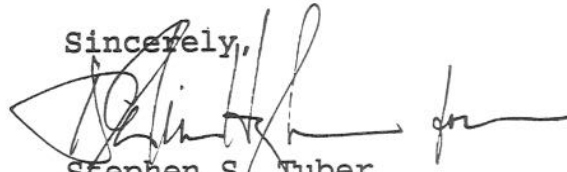
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feet and contains fluid with a TDS of about 1,400 mg/liter. The data indicates the existing supplies are coming from the Ft Union formation at a depth of less than 285 feet.

Based on our review, the Environmental Protection Agency (EPA) has determined that the Dakota Formation within 1/4 mile of the Browning #11-17 contains fluids with a TDS of more than 3000 mg/liter and is not reasonably expected to supply a public water system. Thus, EPA does not object to the granting of an exemption for the Dakota Formation within 1/4 mile of the well. As a result of this exemption, the Dakota Formation within 1/4 mile of the Browning #11-17 well will no longer be defined as a USDW. The exemption is considered to be a minor modification of the MBOGC's program for the regulation of Class II injection wells under Section 1425 of the Safe Drinking Water Act, as defined by UIC Program Guidance 34 and 40 CFR 145.32.

If you have any questions or concerns, please call Paul S. Osborne at (303) 312-6125. Please send us a copy of the Final Order which grants the exemption.

Sincerely,



Stephen S. Tuber  
Director  
Water Program

cc: George Hudak, MBOGC  
Jim Boyter, 8MO  
Bruce Kobelski, ODWGW  
Mario Salazar, OGWDW  
Don Olson, OGWDW  
James Curtin, OGC

